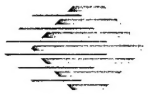

Carnegie Mellon
Software Engineering Institute

OCTAVE®-S Implementation Guide, Version 1.0

Volume 4: Organizational Worksheets

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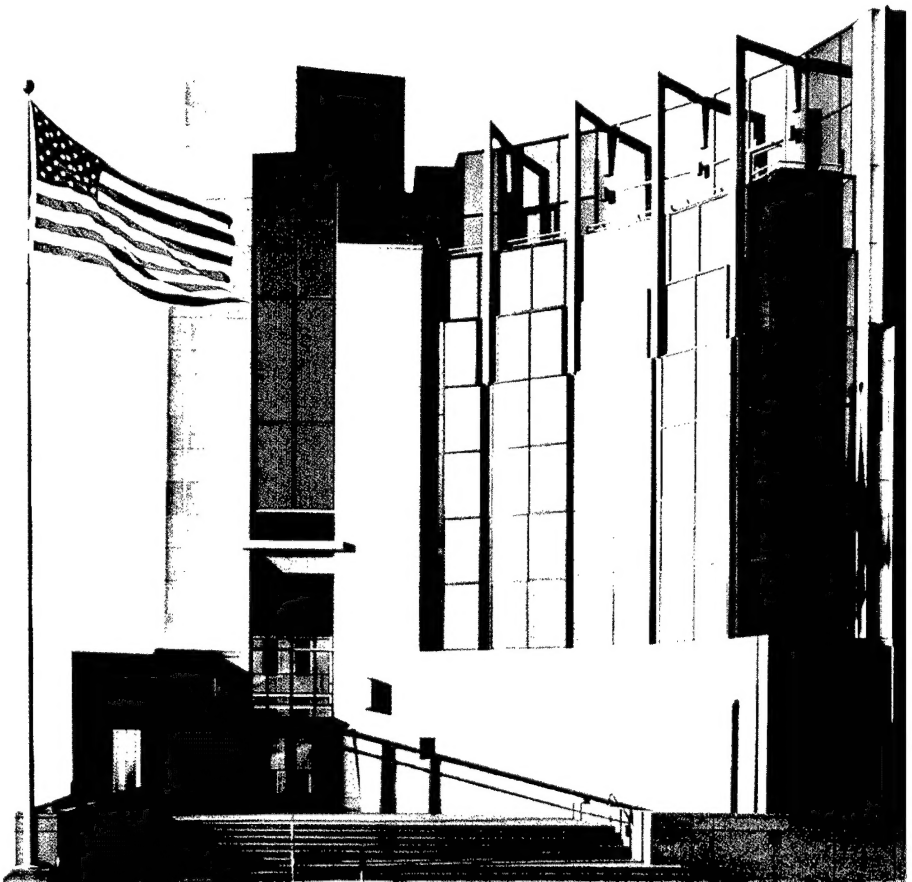
January 2005



HANDBOOK
CMU/SEI-2003-HB-003

Carnegie Mellon
Software Engineering Institute
Pittsburgh, PA 15213-3890

OCTAVE®-S Implementation Guide, Version 1.0

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Networked Systems Survivability Program

This report was prepared for the

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The ideas and findings in this report should not be construed as an official DoD position. It is published in the interest of scientific and technical information exchange.

FOR THE COMMANDER

Christos Scondras
Chief of Programs, XPK

This work is sponsored by the U.S. Department of Defense. The Software Engineering Institute is a federally funded research and development center sponsored by the U.S. Department of Defense.

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About This Document

This document is Volume 4 of the *OCTAVE-S Implementation Guide*, a 10-volume handbook supporting the OCTAVE-S methodology. This volume provides the worksheets that are completed once for the organization during an evaluation. These worksheets reflect information that is independent of any specific asset.

The volumes in this handbook are

- *Volume 1: Introduction to OCTAVE-S* – This volume provides a basic description of OCTAVE-S and advice on how to use the guide.
- *Volume 2: Preparation Guidelines* – This volume contains background and guidance for preparing to conduct an OCTAVE-S evaluation.
- *Volume 3: Method Guidelines* – This volume includes detailed guidance for each OCTAVE-S activity.
- ***Volume 4: Organizational Information Workbook*** – This volume provides worksheets for all organizational-level information gathered and analyzed during OCTAVE-S.
- *Volume 5: Critical Asset Workbook for Information* – This volume provides worksheets to document data related to critical assets that are categorized as information.
- *Volume 6: Critical Asset Workbook for Systems* – This volume provides worksheets to document data related to critical assets that are categorized as systems.
- *Volume 7: Critical Asset Workbook for Applications* – This volume provides worksheets to document data related to critical assets that are categorized as applications.
- *Volume 8: Critical Asset Workbook for People* – This volume provides worksheets to document data related to critical assets that are categorized as people.
- *Volume 9: Strategy and Plan Workbook* – This volume provides worksheets to record the current and desired protection strategy and the risk mitigation plans.
- *Volume 10: Example Scenario* – This volume includes a detailed scenario illustrating a completed set of worksheets.

Abstract

The Operationally Critical Threat, Asset, and Vulnerability Evaluation[SM] (OCTAVE®) approach defines a risk-based strategic assessment and planning technique for security. OCTAVE is a self-directed approach, meaning that people from an organization assume responsibility for setting the organization's security strategy. OCTAVE-S is a variation of the approach tailored to the limited means and unique constraints typically found in small organizations (less than 100 people). OCTAVE-S is led by a small, interdisciplinary team (three to five people) of an organization's personnel who gather and analyze information, producing a protection strategy and mitigation plans based on the organization's unique operational security risks. To conduct OCTAVE-S effectively, the team must have broad knowledge of the organization's business and security processes, so it will be able to conduct all activities by itself.

1 Introduction

This document contains the Operationally Critical Threat, Asset, and Vulnerability Evaluation[SM] (OCTAVE®)-S worksheets that are completed once during an evaluation. The activities that require these worksheets are asset-independent, indicating an organizational focus and relevance across all critical assets.

Table 1 provides a brief introduction to the contents of this workbook, using activity step numbers as a key. For more details about how to complete each step, refer to the *OCTAVE®-S Method Guidelines*, which can be found in Volume 3 of the *OCTAVE®-S Implementation Guide*.

Table 1: Worksheets Provided in This Workbook

Step	Description	Worksheet	Activity	Pages
Step 1	Define a qualitative set of measures (high, medium, low) against which you will evaluate a risk's effect on your organization's mission and business objectives.	Impact Evaluation Criteria	Phase 1 Process S1 S1.1 Establish Impact Evaluation Criteria	5-18
Step 2	Identify information-related assets in your organization (information, systems, applications, people).	Asset Identification	Phase 1 Process S1 S1.2 Identify Organizational Assets	19-28
Step 3a	Determine to what extent each practice in the survey is used by the organization.	Security Practices	Phase 1 Process S1 S1.3 Evaluate Organizational Security Practices	29-60

[SM] Operationally Critical Threat, Asset, and Vulnerability Evaluation is a service mark of Carnegie Mellon University.

® OCTAVE is registered in the United States Patent and Trademark Office by Carnegie Mellon University.

Table 1: Worksheets Provided in This Workbook (cont.)

Step	Description	Worksheet	Activity	Pages
Step 3b	As you evaluate each security practice area using the survey from Step 3a, document detailed examples of • what your organization is currently doing well in this area (security practices) • what your organization is currently *not* doing well in this area (organizational vulnerabilities)	Security Practices	Phase 1 Process S1 S1.3 Evaluate Organizational Security Practices	29-60
Step 4	After completing Steps 3a and 3b, assign a stoplight status (red, green, yellow) to each security practice area. The stoplight status should reflect how well you believe your organization is performing in each area.	Security Practices	Phase 1 Process S1 S1.3 Evaluate Organizational Security Practices	29-60
Step 5	Review the information-related assets that you identified during Step 2 and select up to five assets that are most critical to the organization.	Critical Asset Selection	Phase 1 Process S2 S2.1 Select Critical Assets	61-64
Step 19a	Document the classes of components that are related to one or more critical assets and that can provide access to those assets. Mark the path to each class selected in Steps 18a-18e. Note any relevant subclasses or specific examples when appropriate.	Infrastructure Review	Phase 2 Process S3 S4.2 Analyze Technology-Related Processes	65-70
Step 19b	For each class of components documented in Step 19a, note which critical assets are related to that class.	Infrastructure Review	Phase 2 Process S3 S4.2 Analyze Technology-Related Processes	65-70
Step 20	For each class of components documented in Step 19a, note the person or group responsible for maintaining and securing that class of component.	Infrastructure Review	Phase 2 Process S3 S4.2 Analyze Technology-Related Processes	65-70

Table 1: Worksheets Provided in This Workbook (cont.)

Step	Description	Worksheet	Activity	Pages
Step 21	For each class of components documented in Step 19a, note the extent to which security is considered when configuring and maintaining that class. Also record how you came to that conclusion. Finally, document any additional context relevant to your infrastructure review.	Infrastructure Review	Phase 2 Process S3 S4.2 Analyze Technology-Related Processes	65-70
Step 23	Define a qualitative set of measures (high, medium, low) against which you will evaluate the likelihood of a threat occurring.	Probability Evaluation Criteria	Phase 3 Process S4 S4.2 Establish Probability Evaluation Criteria	71-73

2 Impact Evaluation Criteria Worksheet

Phase 1 Process S1 Activity S1.1	
Step 1	Define a qualitative set of measures (high, medium, low) against which you will evaluate a risk's effect on your organization's mission and business objectives.

Step 1

Reputation/Customer Confidence

Impact Type	Low Impact
Reputation	Reputation is minimally affected; little or no effort or expense is required to recover.
Customer Loss	Less than _____% reduction in customers due to loss of confidence
Other:	
Other:	

Reputation/Customer Confidence	
Medium Impact	**High Impact**
Reputation is damaged, and some effort and expense is required to recover.	Reputation is irrevocably destroyed or damaged.
_____to _____% reduction in customers due to loss of confidence	More than _____% reduction in customers due to loss of confidence

Step 1

Financial

Impact Type	Low Impact
Operating Costs	Increase of less than _____% in yearly operating costs
Revenue Loss	Less than _____% yearly revenue loss
One-Time Financial Loss	One-time financial cost of less than $_____
Other:	

Financial	
Medium Impact	**High Impact**
Yearly operating costs increase by _____to _____%.	Yearly operating costs increase by more than _____%.
_____to _____% yearly revenue loss	Greater than _____% yearly revenue loss
One-time financial cost of $_____ to $_____	One-time financial cost greater than $_____

Step 1

Productivity

Impact Type	Low Impact
Staff Hours	Staff work hours are increased by less than _____% for _____to _____ day(s).
Other:	
Other:	
Other:	

Productivity	
Medium Impact	**High Impact**
Staff work hours are increased between _____% and _____% for _____to _____ day(s).	Staff work hours are increased by greater than _____% for _____to _____ day(s).

Step 1

Safety/Health

Impact Type	Low Impact
Life	No loss or significant threat to customers' or staff members' lives
Health	Minimal, immediately treatable degradation in customers' or staff members' health with recovery within four days
Safety	Safety questioned
Other:	

Safety/Health	
Medium Impact	**High Impact**
Customers' or staff members' lives are threatened, but they will recover after receiving medical treatment.	Loss of customers' or staff members' lives
Temporary or recoverable impairment of customers' or staff members' health	Permanent impairment of significant aspects of customers' or staff members' health
Safety affected	Safety violated

Step 1

Fines/Legal Penalties

Impact Type	Low Impact
Fines	Fines less than $_____ are levied.
Lawsuits	Non-frivolous lawsuit or lawsuits less than $_____ are filed against the organization, or frivolous lawsuit(s) are filed against the organization.
Investigations	No queries from government or other investigative organizations
Other:	

Fines/Legal Penalties	
Medium Impact	**High Impact**
Fines between $_____ and $_____ are levied.	Fines greater than $_____ are levied.
Non-frivolous lawsuit or lawsuits between $_____ and $_____ are filed against the organization.	Non-frivolous lawsuit or lawsuits greater than $_____ are filed against the organization.
Government or other investigative organization requests information or records (low-profile).	Government or other investigative organization initiates a high-profile, in-depth investigation into organizational practices.

Step 1

Other _____

Impact Type	Low Impact
A:	
B:	
C:	
D:	

	Other
Medium Impact	**High Impact**

3 Asset Identification Worksheet

	Phase 1 Process S1 Activity S1.2
Step 2	Identify information-related assets in your organization (information, systems, applications, people).

Step 2

Information, Systems, and Applications	
System	**Information**
What systems do people in your organization need to perform their jobs?	*What information do people in your organization need to perform their jobs?*

	Information, Systems, and Applications
Applications and Services	**Other Assets**
What applications and services do people in your organization need to perform their jobs?	*What other assets are closely related to these assets?*

Step 2

Information, Systems, and Applications (cont.)	
System	**Information**
What systems do people in your organization need to perform their jobs?	*What information do people in your organization need to perform their jobs?*

	Information, Systems, and Applications (cont.)
Applications and Services	**Other Assets**
What applications and services do people in your organization need to perform their jobs?	*What other assets are closely related to these assets?*

Step 2

People	
People	**Skills and Knowledge**
Which people have a special skill or knowledge that is vital to your organization and would be difficult to replace?	*What are their special skills or knowledge?*

	People
Related Systems	**Related Assets**
Which systems do these people use?	*Which other assets do these people use (i.e., information, services, and applications)?*

Step 2

People (cont.)	
People	**Skills and Knowledge**
Which people have a special skill or knowledge that is vital to your organization and would be difficult to replace?	*What are their special skills or knowledge?*

	People (cont.)
Related Systems	**Related Assets**
Which systems do these people use?	*Which other assets do these people use (i.e., information, services, and applications)?*

4 Security Practices Worksheet

Phase 1
Process S1
Activity S1.3

Step 3a	Determine to what extent each practice in the survey is used by the organization.
Step 3b	As you evaluate each security practice area using the survey from Step 3a, document detailed examples of • what your organization is currently doing well in this area (security practices) • what your organization is currently *not* doing well in this area (organizational vulnerabilities)
Step 4	After completing Steps 3a and 3b, assign a stoplight status (red, green, yellow) to each security practice area. The stoplight status should reflect how well you believe your organization is performing in each area.

1. Security Awareness and Training

Step 3a

Statement	To what extent is this statement reflected in your organization?			
Staff members understand their security roles and responsibilities. This is documented and verified.	Very Much	Somewhat	Not At All	Don't Know
There is adequate in-house expertise for all supported services, mechanisms, and technologies (e.g., logging, monitoring, or encryption), including their secure operation. This is documented and verified.	Very Much	Somewhat	Not At All	Don't Know
Security awareness, training, and periodic reminders are provided for all personnel. Staff understanding is documented and conformance is periodically verified.	Very Much	Somewhat	Not At All	Don't Know
Staff members follow good security practice, such as • securing information for which they are responsible • not divulging sensitive information to others (resistance to social engineering) • having adequate ability to use information technology hardware and software • using good password practices • understanding and following security policies and regulations • recognizing and reporting incidents	Very Much	Somewhat	Not At All	Don't Know

1. Security Awareness and Training

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

2. Security Strategy

Step 3a

Statement	To what extent is this statement reflected in your organization?			
The organization's business strategies routinely incorporate security considerations.	Very Much	Somewhat	Not At All	Don't Know
Security strategies and policies take into consideration the organization's business strategies and goals.	Very Much	Somewhat	Not At All	Don't Know
Security strategies, goals, and objectives are documented and are routinely reviewed, updated, and communicated to the organization.	Very Much	Somewhat	Not At All	Don't Know

2. Security Strategy

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

3. Security Management

Step 3a

Statement	To what extent is this statement reflected in your organization?			
Management allocates sufficient funds and resources to information security activities.	Very Much	Somewhat	Not At All	Don't Know
Security roles and responsibilities are defined for all staff in the organization.	Very Much	Somewhat	Not At All	Don't Know
All staff at all levels of responsibility implement their assigned roles and responsibility for information security.	Very Much	Somewhat	Not At All	Don't Know
There are documented procedures for authorizing and overseeing all staff (including personnel from third-party organizations) who work with sensitive information or who work in locations where the information resides.	Very Much	Somewhat	Not At All	Don't Know
The organization's hiring and termination practices for staff take information security issues into account.	Very Much	Somewhat	Not At All	Don't Know
The organization manages information security risks, including • assessing risks to information security • taking steps to mitigate information security risks	Very Much	Somewhat	Not At All	Don't Know
Management receives and acts upon routine reports summarizing security-related information (e.g., audits, logs, risk and vulnerability assessments).	Very Much	Somewhat	Not At All	Don't Know

3. Security Management

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

4. Security Policies and Regulations

Step 3a

Statement	To what extent is this statement reflected in your organization?
The organization has a comprehensive set of documented, current policies that are periodically reviewed and updated.	Very Much Somewhat Not At All Don't Know
There is a documented process for management of security policies, including • creation • administration (including periodic reviews and updates) • communication	Very Much Somewhat Not At All Don't Know
The organization has a documented process for evaluating and ensuring compliance with information security policies, applicable laws and regulations, and insurance requirements.	Very Much Somewhat Not At All Don't Know
The organization uniformly enforces its security policies.	Very Much Somewhat Not At All Don't Know

4. Security Policies and Regulations

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

5. Collaborative Security Management

Step 3a

Statement	To what extent is this statement reflected in your organization?
The organization has policies and procedures for protecting information when working with external organizations (e.g., third parties, collaborators, subcontractors, or partners), including • protecting information belonging to other organizations • understanding the security polices and procedures of external organizations • ending access to information by terminated external personnel	Very Much Somewhat Not At All Don't Know
The organization documents information protection requirements and explicitly communicates them to all appropriate third parties.	Very Much Somewhat Not At All Don't Know
The organization has formal mechanisms for verifying that all third-party organizations, outsourced security services, mechanisms, and technologies meet its needs and requirements.	Very Much Somewhat Not At All Don't Know
The organization has policies and procedures for collaborating with all third-party organizations that • provide security awareness and training services • develop security policies for the organization • develop contingency plans for the organization	Very Much Somewhat Not At All Don't Know

5. Collaborative Security Management

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

6. Contingency Planning/Disaster Recovery

Step 3a

Statement	To what extent is this statement reflected in your organization?
An analysis of operations, applications, and data criticality has been performed.	Very Much Somewhat Not At All Don't Know
The organization has documented, reviewed, and tested • contingency plan(s) for responding to emergencies • disaster recovery plan(s) • business continuity or emergency operation plans	Very Much Somewhat Not At All Don't Know
The contingency, disaster recovery, and business continuity plans consider physical and electronic access requirements and controls.	Very Much Somewhat Not At All Don't Know
All staff are • aware of the contingency, disaster recovery, and business continuity plans • understand and are able to carry out their responsibilities	Very Much Somewhat Not At All Don't Know

6. Contingency Planning/Disaster Recovery

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

7. Physical Access Control

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
Facility security plans and procedures for safeguarding the premises, buildings, and any restricted areas are documented and tested.	Very Much Somewhat Not At All Don't Know
There are documented policies and procedures for managing visitors.	Very Much Somewhat Not At All Don't Know
There are documented policies and procedures for controlling physical access to work areas and hardware (computers, communication devices, etc.) and software media.	Very Much Somewhat Not At All Don't Know
Workstations and other components that allow access to sensitive information are physically safeguarded to prevent unauthorized access.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for physical access control are formally communicated to all contractors and service providers that control physical access to the building and premises, work areas, IT hardware, and software media.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for physical access control.	Very Much Somewhat Not At All Don't Know

7. Physical Access Control

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

8. Monitoring and Auditing Physical Security

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
Maintenance records are kept to document the repairs and modifications of a facility's physical components.	Very Much Somewhat Not At All Don't Know
An individual's or group's actions, with respect to all physically controlled media, can be accounted for.	Very Much Somewhat Not At All Don't Know
Audit and monitoring records are routinely examined for anomalies, and corrective action is taken as needed.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for monitoring physical security are formally communicated to all contractors and service providers that monitor physical access to the building and premises, work areas, IT hardware, and software media.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for monitoring physical security.	Very Much Somewhat Not At All Don't Know

8. Monitoring and Auditing Physical Security

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

9. System and Network Management

Step 3a

Statement	To what extent is this statement reflected in your organization?			
If staff from your organization is responsible for this area:				
There are documented and tested security plan(s) for safeguarding the systems and networks.	Very Much	Somewhat	Not At All	Don't Know
Sensitive information is protected by secure storage (e.g., backups stored off site, discard process for sensitive information).	Very Much	Somewhat	Not At All	Don't Know
The integrity of installed software is regularly verified.	Very Much	Somewhat	Not At All	Don't Know
All systems are up to date with respect to revisions, patches, and recommendations in security advisories.	Very Much	Somewhat	Not At All	Don't Know
There is a documented and tested data backup plan for backups of both software and data. All staff understand their responsibilities under the backup plans.	Very Much	Somewhat	Not At All	Don't Know
Changes to IT hardware and software are planned, controlled, and documented.	Very Much	Somewhat	Not At All	Don't Know
IT staff members follow procedures when issuing, changing, and terminating users' passwords, accounts, and privileges. • Unique user identification is required for all information system users, including third-party users. • Default accounts and default passwords have been removed from systems.	Very Much	Somewhat	Not At All	Don't Know
Only necessary services are running on systems – all unnecessary services have been removed.	Very Much	Somewhat	Not At All	Don't Know
Tools and mechanisms for secure system and network administration are used, and are routinely reviewed and updated or replaced.	Very Much	Somewhat	Not At All	Don't Know
If staff from a third party is responsible for this area:				
The organization's security-related system and network management requirements are formally communicated to all contractors and service providers that maintain systems and networks.	Very Much	Somewhat	Not At All	Don't Know
The organization formally verifies that contractors and service providers have met the requirements for security-related system and network management.	Very Much	Somewhat	Not At All	Don't Know

9. System and Network Management

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

10. Monitoring and Auditing IT Security

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
System and network monitoring and auditing tools are routinely used by the organization. Unusual activity is dealt with according to the appropriate policy or procedure.	Very Much Somewhat Not At All Don't Know
Firewall and other security components are periodically audited for compliance with policy.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for monitoring information technology security are formally communicated to all contractors and service providers that monitor systems and networks.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for monitoring information technology security.	Very Much Somewhat Not At All Don't Know

10. Monitoring and Auditing IT Security

Step 3b

What is your organization currently doing well in this area?	What is your organization currently *not* doing well in this area?

Step 4

How effectively is your organization implementing the practices in this area?

- ❑ Red
- ❑ Yellow
- ❑ Green
- ❑ Not Applicable

11. Authentication and Authorization

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
Appropriate access controls and user authentication (e.g., file permissions, network configuration) consistent with policy are used to restrict user access to information, sensitive systems, specific applications and services, and network connections.	Very Much Somewhat Not At All Don't Know
There are documented policies and procedures to establish and terminate the right of access to information for both individuals and groups.	Very Much Somewhat Not At All Don't Know
Methods or mechanisms are provided to ensure that sensitive information has not been accessed, altered, or destroyed in an unauthorized manner. Methods or mechanisms are periodically reviewed and verified.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for controlling access to systems and information are formally communicated to all contractors and service providers that provide authentication and authorization services.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for authentication and authorization.	Very Much Somewhat Not At All Don't Know

11. Authentication and Authorization

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

12. Vulnerability Management

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area: There is a documented set of procedures for managing vulnerabilities, including • selecting vulnerability evaluation tools, checklists, and scripts • keeping up to date with known vulnerability types and attack methods • reviewing sources of information on vulnerability announcements, security alerts, and notices • identifying infrastructure components to be evaluated • scheduling of vulnerability evaluations • interpreting and responding to the evaluation results • maintaining secure storage and disposition of vulnerability data	Very Much Somewhat Not At All Don't Know
Vulnerability management procedures are followed and are periodically reviewed and updated.	Very Much Somewhat Not At All Don't Know
Technology vulnerability assessments are performed on a periodic basis, and vulnerabilities are addressed when they are identified.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area: The organization's vulnerability management requirements are formally communicated to all contractors and service providers that manage technology vulnerabilities.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for vulnerability management.	Very Much Somewhat Not At All Don't Know

12. Vulnerability Management

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

13. Encryption

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
Appropriate security controls are used to protect sensitive information while in storage and during transmission (e.g., data encryption, public key infrastructure, virtual private network technology).	Very Much Somewhat Not At All Don't Know
Encrypted protocols are used when remotely managing systems, routers, and firewalls.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for protecting sensitive information are formally communicated to all contractors and service providers that provide encryption technologies.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for implementing encryption technologies.	Very Much Somewhat Not At All Don't Know

13. Encryption

Step 3b

What is your organization currently doing well in this area?	What is your organization currently *not* doing well in this area?

Step 4

How effectively is your organization implementing the practices in this area?

- ❑ Red
- ❑ Yellow
- ❑ Green
- ❑ Not Applicable

14. Security Architecture and Design

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
System architecture and design for new and revised systems include considerations for • security strategies, policies, and procedures • history of security compromises • results of security risk assessments	Very Much Somewhat Not At All Don't Know
The organization has up-to-date diagrams that show the enterprise-wide security architecture and network topology.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's security-related requirements are formally communicated to all contractors and service providers that design systems and networks.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for security architecture and design.	Very Much Somewhat Not At All Don't Know

14. Security Architecture and Design

Step 3b

What is your organization currently doing well in this area?	What is your organization currently *not* doing well in this area?

Step 4

How effectively is your organization implementing the practices in this area?

- ❑ Red
- ❑ Yellow
- ❑ Green
- ❑ Not Applicable

15. Incident Management

Step 3a

Statement	To what extent is this statement reflected in your organization?
If staff from your organization is responsible for this area:	
Documented procedures exist for identifying, reporting, and responding to suspected security incidents and violations.	Very Much Somewhat Not At All Don't Know
Incident management procedures are periodically tested, verified, and updated.	Very Much Somewhat Not At All Don't Know
There are documented policies and procedures for working with law enforcement agencies.	Very Much Somewhat Not At All Don't Know
If staff from a third party is responsible for this area:	
The organization's requirements for managing incidents are formally communicated to all contractors and service providers that provide incident management services.	Very Much Somewhat Not At All Don't Know
The organization formally verifies that contractors and service providers have met the requirements for managing incidents.	Very Much Somewhat Not At All Don't Know

15. Incident Management

Step 3b		Step 4
What is your organization currently doing well in this area?	**What is your organization currently *not* doing well in this area?**	**How effectively is your organization implementing the practices in this area?**
		❑ Red ❑ Yellow ❑ Green ❑ Not Applicable

5 Critical Asset Selection Worksheet

Phase 1
Process S2
Activity S2.1

Step 5	Review the information-related assets that you identified during Step 2 and select up to five (5) assets that are most critical to the organization.

Step 5

Questions to Consider:	*Which assets would have a large adverse impact on the organization if* • *they are disclosed to unauthorized people?* • *they are modified without authorization?* • *they are lost or destroyed?* • *access to them is interrupted?*

Critical Asset
1.
2.
3.
4.
5.

Notes

6 Infrastructure Review Worksheet

Phase 2
Process S3
Activity S3.2

Step 19a	Document the classes of components that are related to one or more critical assets and that can provide access to those assets. Mark the path to each class selected in Steps 18a-18e. Note any relevant subclasses or specific examples when appropriate.
Step 19b	For each class of components documented in Step 19a, note which critical assets are related to that class.
Step 20	For each class of components documented in Step 19a, note the person or group responsible for maintaining and securing that class of component.
Step 21	For each class of components documented in Step 19a, note the extent to which security is considered when configuring and maintaining that class. Also record how you came to that conclusion. Finally, document any additional context relevant to your infrastructure review.
Gap Analysis	Refine Phase 1 information based on the analysis of access paths and technology-related processes. Update the following, if appropriate: • Mark any additional branches of the threat trees when appropriate (Step 12). Be sure to document appropriate context for each branch you mark (Steps 13-16). • Revise documented areas of concern by adding additional details when appropriate. Identify and document new areas of concern when appropriate (Step 16). • Revise documented security practices and organizational vulnerabilities by adding additional details when appropriate. Identify and document new security practices and/or organizational vulnerabilities when appropriate (Step 3b). • Revise the stoplight status for a security practice when appropriate (Step 4).

Note
In Step 19a, mark the path to each class selected in Steps 18a-18e.

Step 19a	Step 19b	Step 20
Class *Which classes of components are related to one or more critical assets?*	**Critical Assets** *Which critical assets are related to each class?*	**Responsibility** *Who is responsible for maintaining and securing each class of components?*
(Document any relevant subclasses or specific examples when appropriate.)	1. 2. 3. 4. 5.	
Servers		
Internal Networks		
On-Site Workstations		
Laptops		
PDAs/Wireless Components		

Step 21

Protection		Notes/Issues
To what extent is security considered when configuring and maintaining each class of components?	*How do you know?*	*What additional information do you want to record?*

Very Much	Somewhat	Not At All	Don't Know	Formal Techniques	Informal Means	Other	
Servers							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
Internal Networks							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
On-Site Workstations							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
Laptops							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
PDAs/Wireless Components							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	

Note
In Step 19a, mark the path to each class selected in Steps 18a-18e.

Step 19a	Step 19b	Step 20
Class *Which classes of components are related to one or more critical assets?*	**Critical Assets** *Which critical assets are related to each class?*	**Responsibility** *Who is responsible for maintaining and securing each class of components?*
(Document any relevant subclasses or specific examples when appropriate.)	1. 2. 3. 4. 5.	
Other Systems		
Storage Devices		
External Networks		
Home/External Workstations		
Other _____		

Step 21

Protection		Notes/Issues
To what extent is security considered when configuring and maintaining each class of components?	*How do you know?*	*What additional information do you want to record?*

Very Much	Somewhat	Not At All	Don't Know	Formal Techniques	Informal Means	Other	
Other Systems							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
Storage Devices							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
External Networks							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
Home/External Workstations							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	
Other _____							
			❑	❑	❑	❑	
			❑	❑	❑	❑	
			❑	❑	❑	❑	

7 Probability Evaluation Criteria Worksheet

Phase 3
Process S4
Activity S4.2

Step 23	Define a qualitative set of measures (high, medium, low) against which you will evaluate the likelihood of a threat occurring.

Step 23

Frequency-Based Criteria

1. *Think about what constitutes a high, medium, and low likelihood of occurrence for threats to your organization's critical assets.*

Time Between Events	Daily	Weekly	Monthly	Four Times Per Year	Two Times Per Year
Annualized Frequency	365	52	12	4	2

2. *Draw lines that separate high from medium and medium from low.*

One Time Per Year	Once Every Two Years	Once Every Five Years	Once Every 10 Years	Once Every 20 Years	Once Every 50 Years
1	0.5	0.2	0.1	0.05	0.02

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
(Leave Blank)	January 2005	Final

4. TITLE AND SUBTITLE	5. FUNDING NUMBERS
OCTAVE-S Implementation Guide, Version 1.0, Volume 4	F19628-00-C-0003

6. AUTHOR(S)

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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
Software Engineering Institute Carnegie Mellon University Pittsburgh, PA 15213	CMU/SEI-2003-HB-003

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSORING/MONITORING AGENCY REPORT NUMBER
HQ ESC/XPK 5 Eglin Street Hanscom AFB, MA 01731-2116	

11. SUPPLEMENTARY NOTES

12A DISTRIBUTION/AVAILABILITY STATEMENT	12B DISTRIBUTION CODE
Unclassified/Unlimited, DTIC, NTIS	

13. ABSTRACT (MAXIMUM 200 WORDS)

The Operationally Critical Threat, Asset, and Vulnerability Evaluation℠ (OCTAVE®) approach defines a risk-based strategic assessment and planning technique for security. OCTAVE is a self-directed approach, meaning that people from an organization assume responsibility for setting the organization's security strategy. OCTAVE-S is a variation of the approach tailored to the limited means and unique constraints typically found in small organizations (less than 100 people). OCTAVE-S is led by a small, interdisciplinary team (three to five people) of an organization's personnel who gather and analyze information, producing a protection strategy and mitigation plans based on the organization's unique operational security risks. To conduct OCTAVE-S effectively, the team must have broad knowledge of the organization's business and security processes, so it will be able to conduct all activities by itself.

14. SUBJECT TERMS	15. NUMBER OF PAGES
information security, risk management, OCTAVE	74

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL